

## IOU Wallet, reducing default for informal, deferred obligations

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## Abstract

This paper examines dynamics in informal deferred obligations (material and immaterial). It compares multiple instruments of (debt) enforcement and explores whether higher default rates in informal peer-to-peer obligations arise primarily from bad intent, or from structural friction embedded in lack of clarity, tracking, and settlement burdens.

IOU Wallet is introduced as a digital infrastructure layer for informal trust based obligations rather than imposing coercive enforcement (Virtual Handshake vs Signature). Using IOUs as an instrument, it aims to reduce friction: clarifying terms, increasing visibility, preserving social trust, and integrated settlement routes for ..

Will lowering structural barriers AND using personal integrity as an underwriting mechanism (as alternative to trustless and centralised systems), materially improve fulfillment rates for informal obligations?

## 1. IOUs in Background & History

IOUs represent one of the most fundamental mechanisms of economic coordination. At their core, they describe deferred obligations: situations in which value is promised in the present and delivered in the future. Such arrangements predate money, written contracts, and formal institutions and arise wherever immediate settlement is impractical. These obligations may be monetary or non-monetary and may infer agreed rates, either as a cost of borrowing or as a late-payment penalty.

Anthropological and historical evidence shows that early IOUs were embedded in social structures. Obligations to deliver food, labor, protection, or goods were maintained through shared memory, reputation, and reciprocal expectations within families, clans, and early communities. Enforcement was social, and underwriting took the form of personal integrity and reputation.

As trade expanded beyond immediate social circles, reliance on memory alone became insufficient. Written records ranging from Roman clay tablets to medieval merchant ledgers emerged to preserve obligations beyond individual recall. These records increased integrity by introducing persistence and clarity, while enforcement remained largely social or political.

With the rise of states, markets, and legal systems, IOUs became increasingly formalized. Contracts, promissory notes, currency, and sovereign debt transformed obligations into standardized instruments backed by institutional enforcement and capital-based underwriting.

An instructive historical example of non-institutional yet highly reliable IOU systems is the Hawala network. Hawala operates through chains of trusted intermediaries who honor obligations based on reputation and reciprocal accountability rather than legal enforceability. This illustrates that high integrity can be achieved without formal coercion when underwriting is reputational and network-based.

## 2. Types of IOUs in the Present Day

In contemporary economies, IOUs operate across a wide spectrum of contexts. While their fundamental structure remains unchanged, the systems that support them differ significantly in purpose, scale, governance, and the relationship between the parties involved.

Institutional IOUs include physical currency, bank deposits, government bonds, and corporate debt instruments. These IOUs are typically issued by institutions to institutions,

or by institutions to individuals. They are designed for scalability and transferability. Integrity is ensured through standardization, enforceability through legal systems, and underwriting through sovereign authority or balance sheets.

Commercial and semi-formal IOUs occupy an intermediate space. Trade credit between businesses, shop tabs, service retainers, and informal commercial loans often rely on written records and long-term relationships. Trust plays a meaningful role, but legal enforcement remains a credible fallback. Transferability is usually constrained and conditional.

Peer-to-peer IOUs arise directly between individuals and can be divided into two structurally distinct categories. Formal peer-to-peer IOUs adopt institutional characteristics such as written contracts, legal enforceability, and formal underwriting. Informal peer-to-peer IOUs arise without institutional mediation or legal formalization.

Informal peer-to-peer IOUs include lending money for short periods, informal bets, shared expenses settled later, borrowed items, and promised services.

### **3. Trust, Enforceability, and Underwriting**

To analyze IOU systems coherently, it is necessary to distinguish between trust, enforceability, and underwriting three dimensions that are often conflated.

Enforceability refers to the capacity to compel fulfillment through external mechanisms. Legal systems, courts, and institutional penalties provide high enforceability, while social pressure and reputational consequences provide weaker but often effective forms.

Trust reflects the expectation that an obligation will be honored. This expectation may arise from personal relationships, network reputation, or institutional guarantees. High trust does not necessarily imply high enforceability, and systems may function effectively with one but not the other.

Underwriting describes how the cost of failure is absorbed. In institutional finance, underwriting is capital-backed or legally guaranteed. In informal systems, underwriting is reputational: failure results in loss of trust, status, or future opportunity.

Underwriting does not necessarily require capital. It requires a mechanism by which default produces meaningful consequences.

#### **4. Transferability as a Structural Boundary**

Transferability represents a critical threshold in the design of IOU systems. Once an obligation becomes freely transferable, it loses much of its original social context and begins to function as a financial instrument.

Institutional IOUs are intentionally designed for transferability. Currency, bonds, and negotiable instruments derive much of their utility from being exchangeable independently of the original relationship.

Most informal IOUs are intentionally non-transferable. They are tied to specific relationships, expectations, and circumstances.

#### **5. Comparative Analysis of IOU Systems**

Based on the classification established above, IOU systems can be compared across enforceability, trust source, underwriting mechanism, and transferability. Table 1 summarizes these structural differences and highlights the specific niche addressed by IOU Wallet.

IOU Type	Typical Parties	Enforceability	Primary Trust Basis	Underwriting Mechanism	Transferability	Completion / Default Resolution
<b>Institutional IOUs</b>	Institution ↔ Institution / Individual	High (Legal / Institutional)	Institutional Authority	Capital / Sovereign Backing	High	High completion; defaults handled through formal legal processes
<b>Formal Peer-to-Peer IOUs</b>	Individual ↔ Individual	High (Contractual)	Legal Agreement	Legal Claims / Collateral	Limited	High completion; defaults resolved via contractual enforcement
<b>Informal Peer-to-Peer IOUs</b>	Individual ↔ Individual	Low (Social)	Personal Integrity	Reputation / Social Standing	Low	Low to variable completion; defaults often unresolved or silently absorbed

Table 1: Structural comparison of IOU categories.

## 6. The Informal IOU Failure Mode

Informal peer-to-peer IOUs are ubiquitous in everyday life. Common examples include lending books or tools, advancing money when someone has forgotten their wallet, informal bets between friends, or agreeing to settle shared expenses at a later point in time. Obligations may also be immaterial such as a dinner, a date, a hug or an apology.

In most cases, these obligations are entered into with clear intent and mutual understanding. However, they are rarely recorded in a persistent, shared form.

Over time, characteristic failure modes emerge. Commitments may be forgotten, remembered differently by the parties involved, or deprioritized as physical distance and time increase.

Social dynamics further complicate resolution. Reminding someone of an informal obligation can feel disproportionate or accusatory, while escalation risks damaging the underlying relationship. As a result, many informal IOUs are quietly sidelined rather than explicitly addressed.

We are exploring if these failures are the result of malicious intent or if they stem from the absence of lightweight mechanisms for recording, tracking, and resolving informal obligations in a way that preserves trust while avoiding coercion.

## 7. Digital Opportunity: Mutual Recording and Ubiquitous Settlement

Digital systems introduce capabilities that were previously unavailable to informal peer-to-peer obligations. Chief among these is the ability to preserve shared understanding over time without escalating to institutional enforcement.

At the structural level, mutual recording replaces reliance on individual memory with a shared, persistent reference. This improves integrity by ensuring that obligations are explicitly acknowledged at the moment of agreement and remain visible thereafter. Importantly, such recording does not compel performance; it merely stabilizes the shared understanding of what was agreed.

Digital representation also enables obligations to move through clearly defined states, such as creation, partial fulfillment, or resolution. These state transitions can be observed by all involved parties without requiring escalation or confrontation, reducing ambiguity while preserving voluntariness.

Optional settlement mechanisms extend this framework by allowing obligations to be resolved efficiently when appropriate, without mandating institutionalization. Settlement remains conditional on consent and context, ensuring that informal obligations do not become financial instruments by default.

Taken together, these capabilities allow digital systems to increase integrity and clarity while reducing burdens and maintaining low enforceability. This combination creates a distinct design space for managing everyday obligations that are socially meaningful but poorly served by existing legal or financial infrastructure.

## **8. IOU Wallet: Integrating High Integrity with Low Enforceability**

IOU Wallet is designed as a digital system for managing informal peer-to-peer obligations that are meaningful in everyday life but insufficiently supported by existing financial or legal infrastructure. Its purpose is not to formalize or institutionalize such obligations, but to preserve their relational character while improving clarity, persistence, and ease of resolution.

The system operates at the intersection of trust, integrity, and enforceability, deliberately targeting a space where obligations are entered into voluntarily, underwritten by personal integrity, and resolved without coercive mechanisms.

## CARTESIAN ANALYSIS: FINANCIAL INSTRUMENT MAPPING

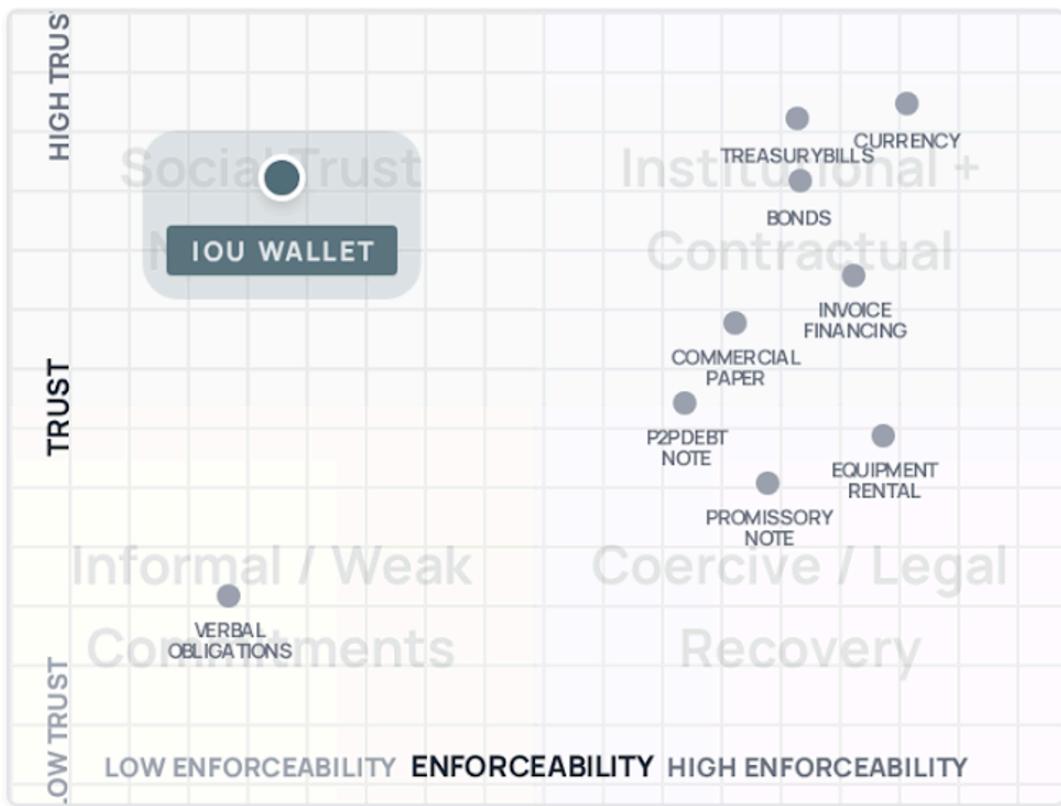


Figure 2 illustrates the structural positioning of IOU Wallet relative to other IOU systems.

The figure maps IOU systems along two dimensions: trust & integrity (vertical axis) and enforceability (horizontal axis). It shows how different systems achieve reliability through different combinations of social trust, reputational underwriting, and external enforcement.

IOU Wallet is positioned in the high-trust, low-enforceability region of the matrix, alongside trust-based network systems. Its distinguishing feature is the use of digital mutual recording to increase integrity through shared acknowledgment, persistence, and state visibility without introducing legal or institutional enforcement.

## 9. Proposed implementation for IOU Wallet

Drawing from the above, IOU Wallet is delivering a lightweight mechanisms and delivery framework for an implementation to reduce default in informal deferred obligations based on 4 pillars.

First, it introduces a neutral recording layer. By making the obligation visible, time-bound, and mutually acknowledged, it reduces ambiguity without formalizing the relationship into a legal contract. The obligation remains social in nature, but no longer dependent on memory or informal recall.

Second, IOU Wallet operationalizes trust through a bilateral acknowledgment mechanism (“virtual handshake”) The opening handshake confirms the Acceptance of the obligation, whilst the Settlement Handshake settles it.

Third, it executes the reminder function. Automated prompts and transparent status tracking remove the need for one party to personally “chase” the other. This shifts the reminder from interpersonal confrontation to system-level coordination, preserving relational trust while maintaining accountability.

Fourth, it lowers logistical barriers to fulfillment. Where parties are geographically separated, settlement pathways whether executed on-platform or off-platform reduce coordination cost. The system does not institutionalize the obligation; it simply makes completion frictionless when both parties intend to honor it.

## 10. References

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